

IN THE SPECIFICATION

Please insert the following on page 1, line 5:

--CROSS-REFERENCE TO RELATED APPLICATION

This application is a Divisional Application of Application No. 09/988,962, filed on November 19, 2001, abandoned.--

Please rewrite the paragraph on page 2, lines 4-18, as follows:

On the other hand, according to the polycrystalline silicon technology, since the maximum temperature during the manufacturing steps thereof is high, i.e., about 1000°C, the mobility of carriers is about 30 to 100cm²/V · sec. For example, a high temperature annealing process is required to convert amorphous silicon into polycrystalline silicon. Also, if TFTs manufactured by the polycrystalline silicon technology are used as the switching elements of pixels of a display panel of an active matrix-type LCD apparatus, a driver for driving the display panel can also be formed on the same substrate of the display panel, so that the above-mentioned ~~thermocompressing bonding process TAB~~ or wire bonding process is unnecessary.

Please rewrite the paragraph on page 4, lines 28-31, as follows:

Figs. 4A, 5A, 6A, 7A and 8B 8A are cross-sectional views for explaining an embodiment of the method for manufacturing a TFT according to the present invention;

Please rewrite the paragraph beginning on page 4, line 34, and ending on page 5, line 1, as follows:

~~Figs.~~ Figs. 9 and 10 are cross-sectional ~~view~~ views illustrating modifications of Figs. 7A and 8A, respectively;

Please rewrite the paragraph on page 5, lines 14-16, as follows:

Fig. 16 is a circuit diagram illustrating a static random access memory (SRAM) cell to which the TFT according to the present invention is applied; ~~and~~

Please rewrite the paragraphs beginning on page 6, lines 12-14, as follows:

The polycrystalline silicon island 3' of Fig. 1 is formed by using a pulse ~~layer~~ laser irradiation apparatus as illustrated in Fig. 2.

Please rewrite the paragraphs beginning on page 6, line 31, and ending on page 7, line 12, as follows:

Next, referring to Fig. 3A, the amorphous silicon layer is irradiated with a laser beam emitted from the pulse laser apparatus of Fig. 2 by moving the glass substrate 1 along X-and Y-directions. In this case, the laser beam has a square size of several millimeters or several hundred micrometers. Additionally, the energy of the laser beam is relatively low, for example, about 300 to 500 mJ/cm², and also, the slope of the energy with respect to the X- or Y-direction is relatively gentle. As a result, a part of the amorphous silicon layer 3 is converted into a polycrystalline silicon layer 3' which has a randomly-small grain size as shown in Fig. 3A.

Next, referring to Fig. 3B, polycrystalline silicon islands 3' are formed by performing a photolithography and etching process upon the polycrystalline silicon ~~layer~~ layer 3'.

Please rewrite the paragraph on page 7, lines 17-20, as follows:

In the manufacturing method as shown in Figs. 3A and 3B, however, since the polycrystalline silicon island 3 3' has a randomly-small grain size, the mobility of carriers is so low that the ON-current is low.

Please rewrite the paragraphs beginning on page 7, line 28, and ending on page 9, line 19, as follows:

First, referring to Figs. 4A and 4B, an about 0.5 to 1.1 mm thick glass substrate 1 is subject to a cleaning and rinsing process to remove contaminants such as organic matter, metal or small particles from the surface of the glass substrate 1. Then, in order to prevent harmful impurities from diffusing from the glass substrate 1, an about 1 μ m thick substrate covering layer 2 made of silicon oxide is deposited on the glass substrate 1 by an LPCVD process using silane gas and oxygen gas. Note that the substrate covering layer 2 can be deposited by a plasma CVD process using tetraethoxysilane (TEOS) gas and oxygen gas, an atmospheric pressure CVD (APCVD) process using TEOS gas and ozone gas, or a remote plasma CVD process where a deposition area is separated from a plasma gas generation area. Then, an about 60 to 80nm thick amorphous silicon layer 3 is deposited on the substrate covering layer 2 by an LPCVD process using disilane gas at a temperature of about 500°C. In this case, the hydrogen concentration of the amorphous silicon layer 3 is less than 1 atom percent to prevent the emission of hydrogen atoms from the amorphous silicon layer 3 by a laser irradiation process which will be carried out later. If a large number of hydrogen atoms are emitted from the amorphous silicon layer 3, the surface of a polycrystalline silicon layer converted therefrom greatly fluctuates. Also, the above-mentioned amorphous silicon layer 3 having a low hydrogen concentration can be deposited by a

plasma CVD process using silane gas and hydrogen gas, or tetrafluoro-silane gas and hydrogen gas.

Next, referring to Figs 5A and 5B, the glass substrate 1 is again subject to a cleaning and rinsing process to remove contaminants such as organic matter, metal, small particles and silicon oxide from the surface of the amorphous silicon layer 3. Then, the glass substrate 1 is entered into the pulse laser apparatus of Fig. 2 where the amorphous silicon layer 3 is irradiated with laser line beams under an atmosphere of pure nitrogen gas at a about 700 Torr (8.33×10^4 Pa). In this case, the laser line beams have a rectangular size of $5\mu\text{m} \times 100\mu\text{m}$. Also, the energy of the laser beams is relatively high, for example, about 400 to 900 mJ/am², and also, the slope of the energy with respect to the Y-direction is relatively sharp. As a result, as illustrated in Fig. 5B, crystalline silicon seeds (not shown) are randomly generated at portions of the amorphous silicon layer 3 at Y= Y1, Y2, Y1' and Y2' where the temperature is close to a melting point of silicon. Then, polycrystalline silicon is grown from the crystalline silicon seeds toward the center of each of the laser line beams at Y=Y3 and Y3'. Finally, the growth of polycrystalline silicon stops at Y=Y3 and Y3'. Thus, a polycrystalline silicon layer 3' is obtained to include elongated grains having a length of an approximately half of the width of the laser line beams. As a result, the polycrystalline silicon layer 3' has stripes each of which is divided into two regions 31 and 32. Then, nitrogen is exhausted from the pulse laser apparatus, and then, oxygen gas is introduced thereinto.

Please rewrite the paragraph beginning on page 10, line 35, and ending on page 11, line 17, as follows:

Finally, referring to Figs. 8A and 8B, a passivation layer 6 made of silicon oxide is deposited on the entire surface by a plasma CVD process using TEOS gas and oxygen gas or an APCVD process using TEOS gas and ozone gas. Note that, the passivation layer 6 can be made of silica coating ~~material~~ material, or organic coating material, or silicon nitride. As occasion demands, the passivation layer 6 is flatten flattened by an annealing process or the like. Then, contact holes CONT are perforated in the gate insulating layers 4-1 and 4-2 and the passivation layer 6 by a photolithography and etching process thereupon. Then, a metal layer 7 made of aluminum, aluminum alloy, copper, copper alloy or refractory metal such as tungsten or molybdenum is deposited on the entire surface by a sputtering process or the like, and the metal layer 7 is patterned by a photolithography and etching process.

Please rewrite the paragraph beginning on page 15, line 31, and ending on page 16, line 5, as follows:

In Fig. 17A, the projector is constructed by a halogen lamp 1701, ~~dielectric~~ diachroic lenses 1702 to 1707, light valves 1708, 1709 and 1710, a projection lens 1711 and a screen 1712. In this case, a red component R is generated by the lenses 1702, 1705, 1706 and 1707 and the light valve 1708; a blue component B is generated by the lenses 1702, 1703, 1706 and 1707 and the light valve 1709; and a green component G is generated by the lenses 1702, 1703, 1704 and 1707 and the light valve 1710.